

Claims

- 1. An audio system comprising:**

an audio source;

5 a playing terminal connected to the audio source by means of a data link; and

an audio transducer connected to the playing terminal,

wherein a plurality of audio components are provided at the audio source, each audio component comprising (a) audio data relating to an audible sound or track, and (b) positional data, relative to the audio transducer means, at which each audible sound or track is to be perceived, the audio source being arranged to (i) generate, from the plurality of audio components, a first set of spatially processed data for transmission over the data link at a first bit rate, and (ii) individually transmit each of the audio components at a bit-rate which is lower than that of the first bit rate, the playing terminal being arranged to receive the first set of spatially processed data and each individual audio component, at their respective bit-rates, to generate a second set of spatially processed data using the individual audio components, and to output the first and second sets of spatially processed data by means of the audio transducer.

2. An audio system according to claim 1, further comprising a user control device
20 connected to the playing terminal and arranged to enable user-selection of one the
audible sounds or tracks, corresponding to one of the audio components outputted from
the audio transducer means, as a focus sound or track.

3. An audio system according to claim 2, wherein the user control device comprises a
25 position sensor for being mounted on a body part of a user, the position sensor being
arranged to cause selection of an audible sound or track as the focus sound or track by
means of generating position data indicating the relative position of the user's body

part, the playing device thereafter comparing the position data with the positional data for each of the audio components so as to determine the audible sound or track to which the user's body part is directed.

5 4. An audio system according to claim 3, wherein the position sensor is a head-mountable sensor, the playing device being arranged to determine the audible sound or track to which a part of the user's head is directed.

10 5. An audio system according to claim 2, wherein the user control device comprises a selection switch or button.

15 6. An audio system according to claim 2, wherein the user control device comprises a voice recognition facility arranged to receive audible commands from a user and to interpret the received commands so as to determine which audible sound or track is selected as the focus sound or track.

7. An audio system according to claim 1, wherein the data link is a wireless data link.

20 8. An audio system according to claim 7, wherein the wireless data link is established over a mobile telephone connection.

9. An audio system according to claim 1, wherein the audio source is a network-based device.

10. An audio system comprising:

an audio source means;

an audio playing means connected to the audio source means by a communication means; and

5 an audio production means connected to the playing terminal,

wherein a plurality of audio components are provided at the audio source means, each audio component comprising (a) audio data relating to an audible sound or track, and (b) positional data, relative to the audio production means, at which each audible sound or track is to be perceived, the audio source being arranged to (i) generate, from
10 the plurality of audio components, a first set of spatially processed data for transmission over the data link at a first bit rate, and (ii) individually transmit each of the audio components at a bit-rate which is lower than that of the first bit rate, the audio playing means being arranged to receive the first set of spatially processed data and each individual audio component, at their respective bit-rates, to generate a second set of
15 spatially processed data using the individual audio components, and to output the first and second sets of spatially processed data by means of the audio production means.

11. A playing terminal for use in an audio system, the playing terminal comprising:

a first port for receiving data from an audio source by means of a data link; and

20 a second port for outputting data, from the playing terminal, to an audio transducer means,

wherein the playing terminal is arranged to receive, by means of the first port, (a) a plurality of audio components, each audio component comprising (i) audio data relating to an audible sound or track, and (ii) positional data relating to a position in three-
25 dimensional space, relative to an audio transducer means, at which each audible sound or track is to be perceived and (b) a first set of spatially processed data generated using the plurality of audio components, the spatially processed data being received at a bit-

rate which is greater than that at which the plurality of audio components are each received, the playing terminal also being arranged to generate a second set of spatially processed data from the audio components received, and to output the first and second sets of spatially processed data by means of the second port.

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12. A method of operating a playing terminal for use in an audio system, the method comprising:

receiving, at the playing terminal, a plurality of audio components transmitted over a data link from a remote audio source, each component comprising (i) audio data relating to an audible sound or track, and (ii) positional data relating to a position in three-dimensional space, relative to an audio transducer means, at which each audible sound or track is to be perceived;

receiving, at the playing terminal a first set of spatially processed data generated using the plurality of audio components, the spatially processed data being received at a bit-rate which is greater than the bit-rate at which each audio component is received; and

generating, using the received plurality of audio components, a second set of spatially processed data and simultaneously playing the first and second sets of spatially processed data from a transducer means connected to the playing terminal.

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13. A method according to claim 12, wherein a user control device is connected to the playing terminal, the method further comprising operating the user control device so as to select an audible sound or track, corresponding to one of the audio components outputted from the audio transducer means, as a focus sound or track.

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14. A method according to claim 13, wherein the step of operating the user control device comprises operating a position sensor mounted on a body part of a user, the

position sensor causing selection of an audible sound or track as the focus sound or track by means of generating position data indicating the relative position of the user's body part, the playing device thereafter comparing the position data with the positional data for each of the audio components so as to determine the audible sound or track to which the user's body part is directed.

15. A method according to claim 14, wherein the position sensor is a head-mountable sensor, the playing device determining the audible sound or track to which a part of the user's head is directed.

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16. A method according to claim 13, wherein the step of operating the user control device comprises operating a selection switch or button.

17. A method according to claim 13, wherein the step of operating the user control device comprises operating a voice recognition facility arranged to receive audible commands from a user and to interpret the received commands so as to determine which audible sound or track is selected as the focus sound or track.

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18. A method according to claim 12, wherein the data link is a wireless data link.

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19. A method according to claim 18, wherein the wireless data link is established over a mobile telephone connection.

20. A computer program stored on a computer-usable medium, the computer program comprising computer-readable instructions for causing a processing device to perform the steps of:

receiving, at the processing device, a plurality of audio components transmitted over
5 a data link from a remote audio source, each component comprising (i) audio data
relating to an audible sound or track, and (ii) positional data relating to a position in
three-dimensional space, relative to an audio transducer means, at which each audible
sound or track is to be perceived;

receiving, at the processing device, a first set of spatially processed data generated
10 using the plurality of audio components, the spatially processed data being received at a
bit-rate which is greater than the bit-rate at which each audio component is received;
and

generating, using the received plurality of audio components, a second set of spatially processed data and simultaneously playing the first and second sets of spatially processed data from a transducer means connected to the playing terminal.